

## REMARKS

By a Final Office Action dated March 24, 2006, the Examiner in charge of this case has maintained the enablement rejection against Claims 1-4, 6-7, 9-10, 12-13, 15-16, 18-19, 21, 22 and 24-27 under 35 U.S.C. §112; 1st ¶. The applicants have responded to the rejection by submitting the amendments and comments set forth hereinbelow. Based on this submission, it is believed that the application is in condition for allowance and thus, reconsideration of the merits of this patent application is respectfully requested.

### Claim Amendments

Independent Claims 1 and 10 are amended herein to include specific bacteria genera and exemplified plant hosts combined with their infective strains, as suggested by the Examiner at page 3, 2nd ¶ of the Office Action. Accordingly, dependent Claims 3 and 4 are amended and dependent Claims 2, 12, 13 and 26 are canceled. Claims 9 and 18 relating to a seed are also canceled. New Claims 33-36 drawn to grape plants exposed to the exemplified infective strains are also introduced. Applicants submit that the newly introduced claims fall within the scope of what would be considered allowable subject matter. Support for such an amendment may be found, for example, at pg. 3, ¶ 7; pg. 5, ¶¶ 21-23; pg. 6, ¶25, pg. 9, ¶ 33; pg. 9, ¶¶ 34-36; and pg. 13, ¶¶ 43 and 46 of the specification.

### Claim Objections – 35 U.S.C. §112; 1st ¶

Claims 1-4, 6-7, 9-10, 12-13, 15-16, 18-19, 21, 22 and 24-27 stand rejected under 35 U.S.C. 112, 1<sup>st</sup> paragraph, as failing to comply with the enablement requirement. Applicants traverse the rejection.

In response, applicants continue to maintain that the claimed subject matter is sufficiently enabled by the specification for a taxonomically divergent species of plants and infective strains of  $\alpha$ -proteobacteria. In support of our position that the claimed invention is enabled for all plant species susceptible to crown gall disease, we direct the Examiner's attention to the following: (1) *N. glauca* is known to be a suitable indicator plant for crown gall assays (as recited in Dr. Triplett's Declaration of November 11, 2004 referring to *Annual Review of Phytopathology*, (1999) 37:60); and (2) *A. tumefaciens strain A6* (that carries an octopine-type Ti plasmid) has a wide host range that allows tumor induction on a common test plant such as *Nicotiana (Ibid)*. This review article supports the notion that galling on *N. glauca* is representative of galling on all plants susceptible to the crown gall disease. Such

susceptible plants (e.g., roses, grapes, apples, peaches, shade and nut trees, many shrubs and vines, and perennial garden plants) are well-known in the art, as described in Dr. Triplett's Declaration. Thus, applicants submit that because *N. glauca* is a well known indicator plant on which crown gall can be controlled by a tfx-producing strain of  $\alpha$ -proteobacteria, it logically follows that the tfx-producing strain is also capable of controlling crown gall on all plants susceptible to the disease.

Furthermore, applicants wish to take this opportunity to distinguish biocontrol of crown gall using TFX from K84, another commercially available agent for controlling crown gall. TFX functions in a wound environment. In contrast, K84, a bacterium *Agrobacterium radiobacter* strain, occurs naturally in many types of soil and near plant roots. Also the toxins responsible for K84's biocontrol ability target only *Agrobacterium* biovar 2 strains (i.e., *A. rhizogenes*) that cause disease on fruit trees. K84 is ineffective against strains that commonly cause disease on other host plants. However, TFX, is toxic to a wide range of *Agrobacterium* biovars, *Rhizobium* and *Brucella* species. Thus, as indicated in Dr. Triplett's Declaration, there is a reasonable expectation of successful control of crown gall on other plants given the success observed on *Nicotiana* and grape.

Applicants also submit that prior to applicants invention, it was not clear, that a peptide antibiotic would work to control plant disease in the wound environment, in-part, because peptides are quickly degraded by proteinases present in wounded tissue and in the plant apoplast. It is believed that success on two widely divergent species should be sufficient to support broader claims for controlling crown gall on all susceptible plants. The key was showing that the TFX peptide is active in the plant wound environment on *Nicotiana* and on grapevine. Accordingly, with applicants demonstration that TFX works in *Nicotiana* and grape wound environments to control crown gall, a skilled artisan has a reasonable expectation that the TFX peptide would function similarly in wounds of other plants.

In regards to enablement of the infective strain of bacteria, applicants submit that it is well known to those of ordinary skill in the art that a specific group of  $\alpha$ -proteobacteria (i.e., *Ochrobactrum*, *Rhodobacter*, *Rhodopseudomonas*, *Brucella*, *Rhizobium* and *Agrobacterium*, not *Bradyrhizobium*) is capable of being inhibited by trifolitoxin (See pg. 5, ¶¶ 22-23 of the specification, incorporating by reference, Triplett et al., "Expression of tfx and Sensitivity to the Rhizobial Peptide Antibiotic Trifolitoxin in a Taxonomically Distinct Group of  $\alpha$ -

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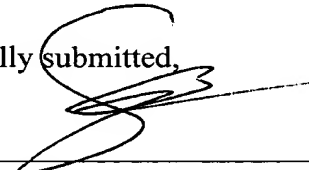
Proteobacteria, Including the Animal Pathogen *Brucella abortus*", *App. Environ. Microbiol.*, 60(11):4163-4166 (1994)). Thus, applicants submit that the claimed subject matter should be entitled to the broader group of  $\alpha$ -proteobacteria described in the specification; not just *Rhizobium* and *Agrobacterium*.

Nevertheless, although applicants neither agree nor acquiesce with the reasoning set forth in the Office Action, to expedite prosecution on the merits, applicants amend the claims herein above to obtain a speedy allowance in this case. Accordingly, applicants reserve the right to pursue broader claims in a continuing application.

In view of the above claim amendments and remarks, the application is now believed to be in condition for allowance. Applicants respectfully request that a timely Notice of Allowance be issued in this case.

No fee is believed to be due in connection with this response to the final Office Action as it is being submitted within two months of the mailing date. However, if any fee is due in this or any subsequent response, please charge the fee to the same Deposit Account No. 17-0055.

Respectfully submitted,



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